HCV Vaccines

CROSS-REFERENCE TO RELATED APPLICATIONS

Substitute Specification Okay to enter 32

This application is a national phase application under 35 U.S.C. 371 of International Application No. PCT/EP2004/007540 filed 9 July 2004, which claims priority to European Patent Application No. 03450171.8 filed 11 July 2003 and European Patent Application No. 04450062.7 filed 12 March 2004. The entire text of each of the above-referenced disclosures is specifically incorporated by reference herein without disclaimer.

The present invention relates to HCV vaccines.

The immune system is a complex network of inter-related cell types and molecules, which has evolved in order to protect multicellular organisms from infectious microorganisms. It can be divided into the evolutionary older innate (or natural) immunity and adaptive (or acquired) immunity. The innate immune system recognises patterns, which are usually common and essential for pathogens. For this limited number of molecular structures germ-line encoded receptors have evolved. By contrast, cells of the adaptive immune system - B and T lymphocytes - can recognise a huge variety of antigenic structures. The receptors, termed according to the cell types expressing them, B cell receptor (BCR, its soluble versions are called antibodies) and T cell receptor (TCR, only cell-surface associated forms) are generated by somatic recombination and show a clonal distribution. Thus, initially there is only small number of cells with a certain specificity. Upon antigen encounter these cells start to divide (clonal expansion) to generate an effector population able to cope with the antigen. After elimination of antigen a specialised sub-population of cells specifically recognising this antigen remains as immunological memory. Taken together the adaptive immune system is slow (compared to innate immunity), however specific and it improves upon repeated exposure to a given pathogen/antigen.

T cells have a central role in adaptive immunity. Their receptors (TCRs) recognise "major histocompatibility complex" (MHC or HLA):peptide complexes on the surface of cells. These